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CENTRAL FAX CENTER****MAR 09 2007**Atty. Docket No. KOV-015
Serial No: 10/722,255Remarks

Applicants and their undersigned representative thank Examiner Tobergte for the careful review of the present application, the detailed explanations in the Office Action dated December 13, 2006, and the indication that Claims 11, 23-29, 32-41, 47, 48, and 81 are allowable. In accordance therewith, allowable Claim 23 has been combined with Claims 13 and 1 (see amended Claim 1 above), and allowable Claim 47 has been combined with Claim 45 (see amended Claim 45 above). In addition, allowable Claims 26, 27 and 48 have been rewritten in independent form.

Finally, Claim 81 has been rewritten in independent form, but an internal inconsistency between Claims 1 and 81 has been corrected (see, e.g., paragraph [0097] of the application as filed). Claim 81 no longer requires irradiation of the nanoparticle-based thin film composition, but it does require converting the nanoparticle-based thin film composition to an electronically functional film. Thus, Claim 81 is believed to still be allowable over the art of record.

In this embodiment, a low surface energy material is deposited over the circuit region to be repaired, and then it is patterned to selectively remove portions of the low surface energy material from areas of the circuit corresponding to the region to be repaired. Generally, this sequence creates relatively high surface energy, wetting surfaces onto which the nanoparticle-based thin film composition is subsequently deposited. The surface energy pattern then controls the wetting and flow of the thin film precursor composition, tending to restrict it to the high surface energy, wetting areas of the substrate. In this way, the wetting and dewetting areas can provide a relatively high resolution film definition and fluid spreading control to allow for high resolution repair features (see paragraph [0097] of the present application). As a result, subsequent irradiation of the nanoparticle-based thin film composition (e.g., for patterning purposes) is not required, although it can be performed to convert the nanoparticles to an electronically functional film. Thus, Claim 81 as amended is believed to be allowable over the art of record.

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The Rejection of Claims 1-10, 13-17 and 42-43 under 35 U.S.C. § 103(a)

The rejection of Claims 1-10, 13-17 and 42-43 under 35 U.S.C. § 103(a) as being unpatentable over Perry et al. has been obviated by appropriate amendment. The limitations of allowable Claim 23 (and intervening Claim 13) have been incorporated into independent Claim 1.

The Rejection of Claims 12, 79 and 80 under 35 U.S.C. § 103(a)

The rejection of Claims 12, 79 and 80 under 35 U.S.C. § 103(a) as being unpatentable over Perry et al. in view of Kodas et al. has been obviated by the amendment of Claim 1, described above.

The Rejection of Claims 18-22 under 35 U.S.C. § 103(a)

The rejection of Claims 18-22 under 35 U.S.C. § 103(a) as being unpatentable over Perry et al. in view of Kodas et al. has been obviated by the amendment of Claim 1, described above.

The Rejection of Claims 30-31 under 35 U.S.C. § 103(a)

The rejection of Claims 30-31 under 35 U.S.C. § 103(a) as being unpatentable over Perry et al. in view of Danese has been obviated by the amendment of Claim 1, described above.

The Rejection of Claim 44 under 35 U.S.C. § 112, First Paragraph

The rejection of Claim 44 under 35 U.S.C. § 112, first paragraph, is respectfully traversed.

The application as filed contains a description of a single tool capable of performing the fabricating, examining or testing, depositing and irradiating steps recited in Claim 44. For example, paragraph [0081] of the present specification describes conventional circuit inspection

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and/or gap/disconnect detection systems (such as the Arraysaver 550 LCD array repair system, commercially available from Photon Dynamics, Inc., San Jose, CA, adapted with YAG and YLF lasers, providing 532 and 1064 nm irradiation at 200 mW for etching/drilling holes in surface dielectrics, a microscope viewer and a pattern matching image processor for circuit inspection; the LR-2200 laser trimming system and LR-2300 LCD laser repair system, both commercially available from Hoya, Tokyo, Japan; the Model MRS-6000 and MRS-770 laser repair systems, commercially available from Micronics Japan Co., Ltd., Tokyo, Japan; the SL455H LCD laser repair system from NEC, Tokyo, Japan; and the ESI Model 9820 and Model 9350 laser repair systems from Canon, Inc., Tokyo, Japan) that can be used to detect gaps, potential electrical disconnects and/or other areas or locations of anomalous electrical resistance in a circuit element on a substrate (e.g., elements 146, 141 and 140, respectively, in FIG. 5A) and form holes in circuit passivation to expose locations of the circuit for electrical connection to a repair structure. The gap location information can be input into the computer that controls the Z stage motor to move a microdropper into a location directly above the gap(s) (see, e.g., elements 102, and 106 146 in FIG. 5B, respectively). A piezoelectric device compresses a microbladder to force a microdrop of repair composition out of a reservoir (see, e.g., elements 150, 154, 156 and 152 in FIG. 5B, respectively). The repair composition is supplied to the reservoir by a conduit (element 158 in FIG. 5B). From this description, one skilled in the art would understand how to modify the Z stage motor of conventional circuit inspection and/or gap/disconnect detection systems to implement the process of Claim 44 in a single tool.

The reliance on the term "theoretically" for this ground of rejection is not well understood. Simply because a machine is disclosed as being theoretically capable of a function does not mean it does not exist. Many automobiles are theoretically capable of traveling in excess of 140 miles per hour, but such automobiles are generally rarely (and sometimes never) driven at such speeds. Certain rockets may be theoretically capable of interstellar travel, but direct proof of such capability does not appear to be readily obtainable in practice. A lack of direct proof does not always mean that a machine does not have a theoretical capability, or that a theoretically capable machine does not exist.

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Withdrawal of this ground of rejection is respectfully requested.

Conclusions

In view of the above amendments and remarks, all bases for objection and rejection are overcome, and the application is in condition for allowance. Early notice to that effect is earnestly requested.

If it is deemed helpful or beneficial to the efficient prosecution of the present application, the Examiner is invited to contact Applicant's undersigned representative by telephone.

Respectfully submitted,



Andrew D. Fortney, Ph.D.
Reg. No. 34,600

401 W. Fallbrook Avenue, Suite 204
Fresno, California 93711
(559) 432-6847